



**I-270 CORRIDOR
INVESTING IN**

THE POWER OF GO!

I-270
INNOVATIVE CONGESTION
MANAGEMENT



OVERVIEW

- ▶ Background/Overview
 - ▶ Contract Procurement
 - ▶ Proposed Solutions/Moving Forward
- 
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BACKGROUND/OVERVIEW





I-270 EXISTING CONDITIONS

I-270 INNOVATIVE CONGESTION MANAGEMENT VISION

- ▶ Solutions to move the most traffic the furthest and the fastest
- ▶ Safely while minimizing operations and maintenance costs while being adaptable for the future
- ▶ No predetermined solutions or requirements
- ▶ \$100 M Fixed Budget



MAJOR RISKS WITH VISION

- ▶ Environmental evaluation cannot begin until after selection nor can schedule be developed until scope of improvements is known
- ▶ Unpredictable timeframe to begin and end construction
- ▶ Adequate data collection needed for price proposal preparation will be costly and time consuming. Lack of data leads to increased risk and reduced cost efficiency for improvements
- ▶ Time consuming process to define various project requirements
- ▶ Right-of-Way impacts (if any) would be unknown at time of procurement potentially leading to extended construction completion

PROJECT DELIVERY METHODS

- Design-Bid-Build (DBB)
 - Construction Management at Risk (CMAR) (Construction Manager/General Contractor (CM/GC))
 - Design-Build (DB)
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CHOOSING THE RIGHT DELIVERY METHOD

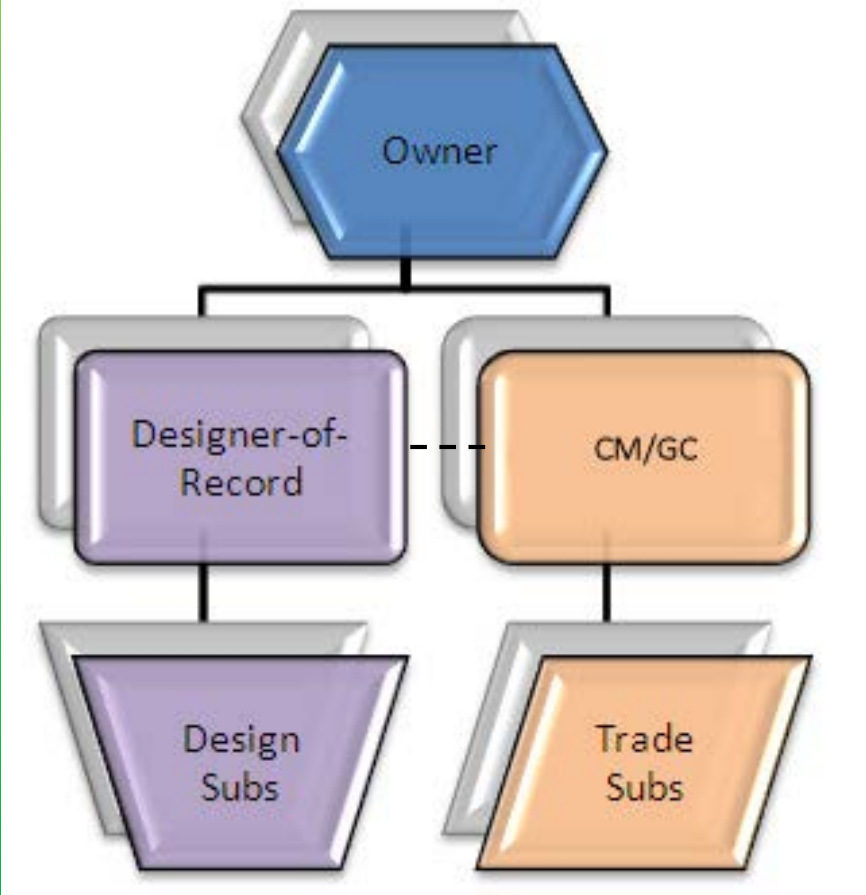
- Project Complexity & Innovation
 - Delivery Schedule
 - Cost
 - Risks
- 
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REASONS TO UTILIZE ALTERNATIVE DELIVERY

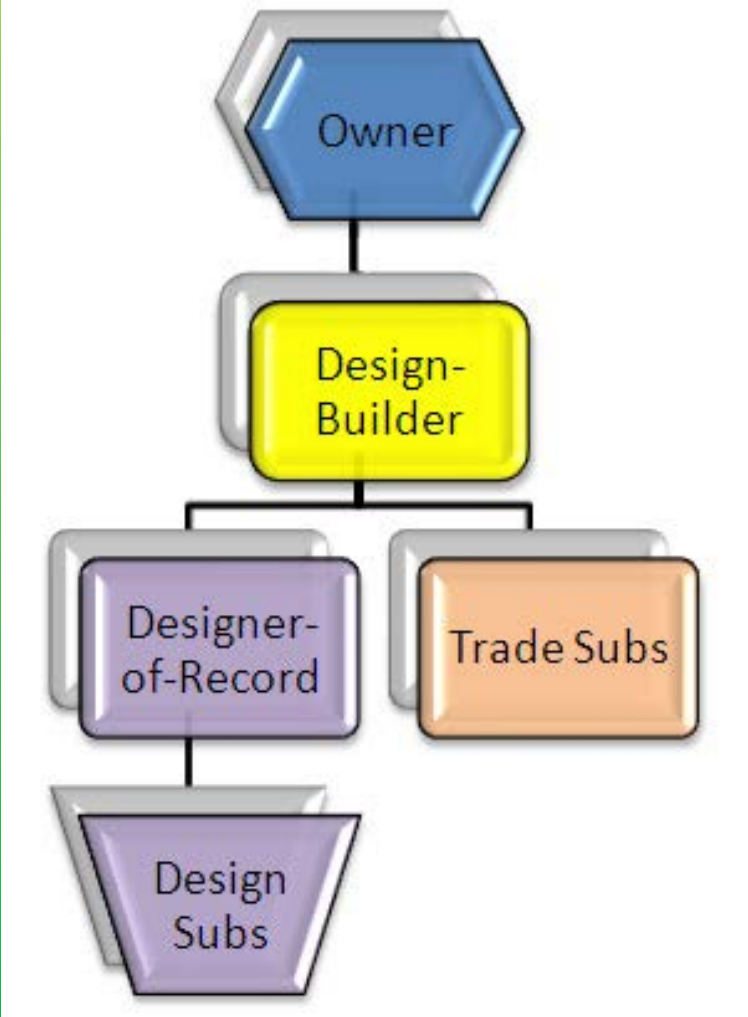
- Shorten Project Delivery Timeframe
 - Maximize Dollars/Better Cost Certainty
 - Provides Opportunities for Innovation
 - Better Risk Mitigation
 - Informed Owner Decision Making
 - Early Contractor Involvement
 - Highly Qualified Teams
 - Group Cohesion and Team Integration
- 

PROJECT DELIVERY METHODS

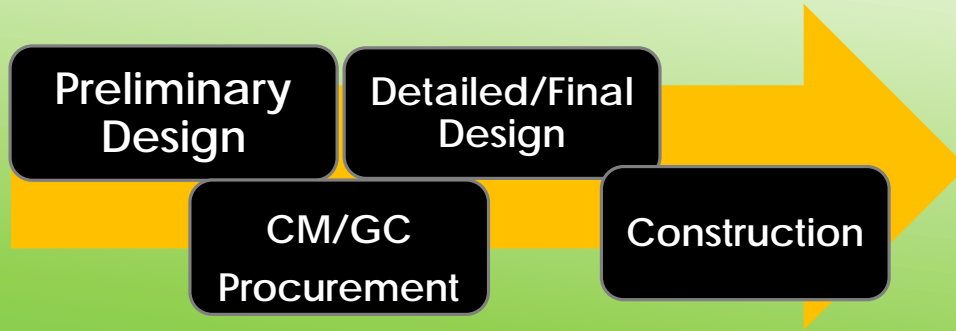
CMAR / CM/GC



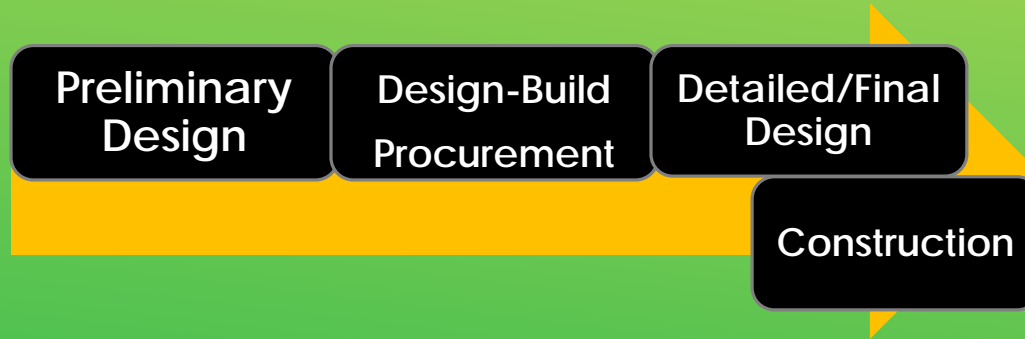
Design-Build



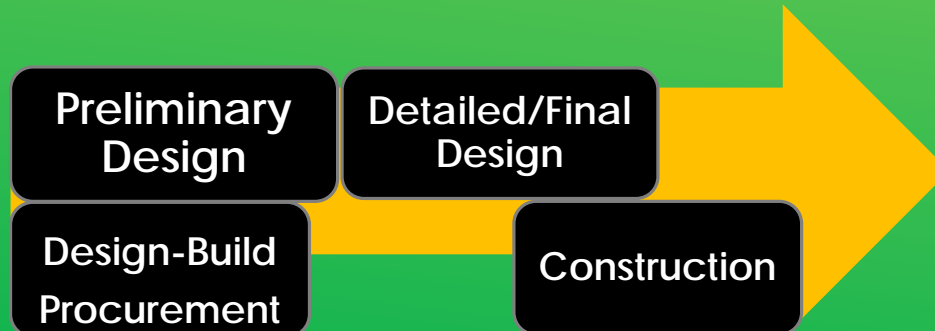
CMAR / CM/GC



Bridging
Design-Build



Progressive Design-Build




BENEFITS OF PROGRESSIVE DESIGN-BUILD OVER BRIDGING DESIGN-BUILD

- Progressive Design-Build introduces the Design-Builder to the project as early as possible
 - Design-Builder becomes a strategic partner in project definition
 - Avoids Spearin liability
 - Facilitates having the Design-Builder involved in permit and other development activity
 - Shorter time and cost from initiation to having Design-Builder on board
- 

BENEFITS OF PROGRESSIVE DESIGN-BUILD OVER BRIDGING DESIGN-BUILD

- Interest in being involved in design
 - Development of design solutions in conjunction with Design-Builder
 - Direct discussions with Design-Builder on O&M/life cycle costing
 - Owner access to real-time information
 - Enhanced cost and schedule information during design development
 - Facilitates better designing and building to budget
 - Open book pricing allows transparency into Design-Builder's costs
 - Process fosters collaborative relationships
- 


CHOOSING BETWEEN CM/GC AND PROGRESSIVE DESIGN-BUILD

- Benefits of CM/GC
 - Ability of Owner to have a direct contract with a designer who is independent of contractor
 - Easier ability to exercise “off-ramp”
 - Benefits of Progressive Design-Build
 - Owner does not have to procure/manage designer
 - May have a slight schedule benefit
 - Provides typical Design-Build benefits
 - Elimination of Spearin liability
 - Enhanced relationship between contractor and designer
- 

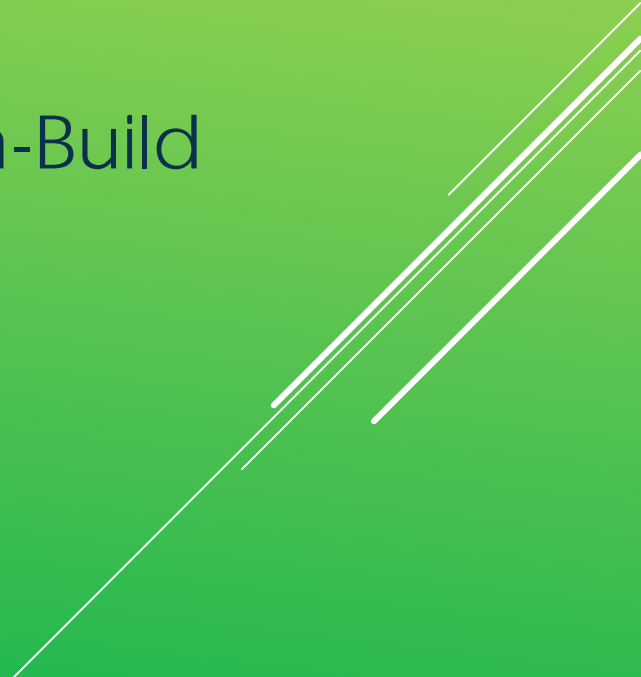
CONTRACT PROCUREMENT



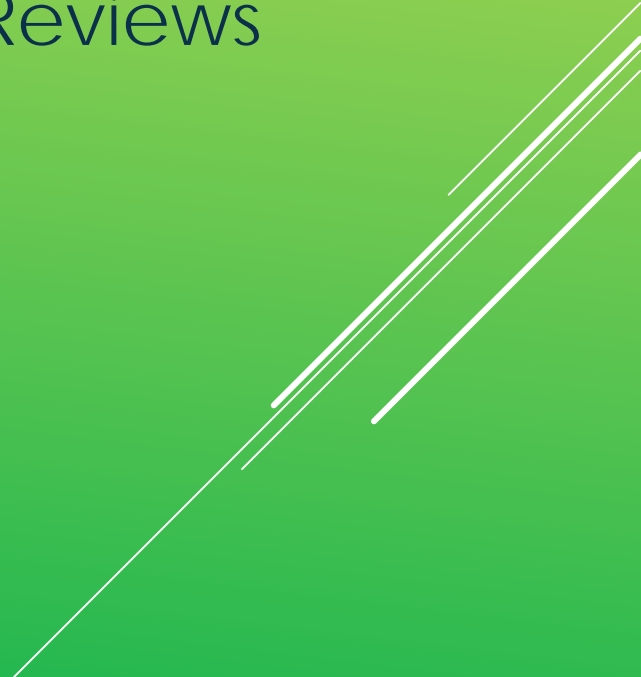
PROCUREMENT OVERVIEW

- Competitive Sealed Proposals (COMAR 21.05.03)
 - Allows for Alternate Proposals
 - Best-Value Selection (“Most Advantageous to the State”)
 - Two-Phase Procurement Process
 - Phase One – Request for Qualifications
 - Phase Two – Request for Proposals
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STATEMENT OF QUALIFICATIONS EVALUATION FACTORS

- Key Staff Experience, Qualifications, and Past Performance
 - Contract Understanding and Progressive Design-Build Approach
 - Design-Build Team's Ability and/or Experience
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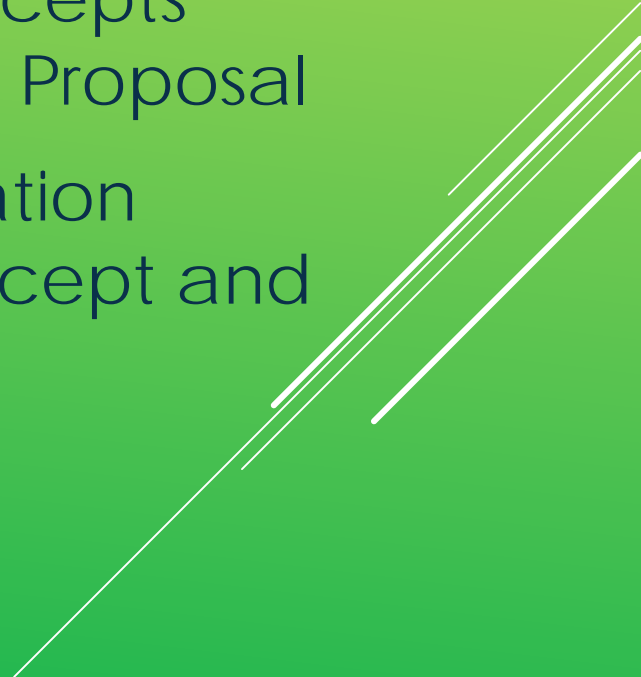
REQUEST FOR PROPOSALS

- One-on-One Meetings
 - Proposed Technical Concept (PTC) Submittals/Reviews
 - Technical Proposal
 - Price Proposal
 - Stipends for unsuccessful Proposers
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ONE-ON-ONE MEETINGS

- Three rounds of One-on-One Meetings
 - **CONFIDENTIAL**
 - Proposers may
 - Ask questions and clarification related to the RFP
 - Identify concerns or conflicts
 - Discuss solutions to address contract goals
 - Present Conceptual Proposed Technical Concepts (PTCs)
 - Agenda is set by the Proposer
- 

PROPOSED TECHNICAL CONCEPTS

- **CONFIDENTIAL**
 - Allows Proposers to submit Proposed Technical Concepts (PTCs) for feedback prior to submission of Technical Proposal
 - Feedback from MDOT SHA is related to implementation potential/issues of the technical aspects of the concept and compatibility with Project Goals
 - PTCs are not accepted or approved.
- 

TECHNICAL PROPOSALS

- Design-Builder's solutions to address and advance goals:
 - Mobility – Maximize vehicle throughput, minimize travel times, and provide a more predictable commuter trip
 - Safety – Provide a safer I-270 Corridor
 - Operability/Maintainability/Adaptability – Minimize MDOT SHA operations and maintenance
 - Well-Managed Contract – Communications, coordination and risk management, and a collaborative partnership

PRICE PROPOSALS

- Three Major Items – Aggregate Amount = Fixed at \$100 M
 - Design & Preconstruction Services
 - Construction Management Fee
 - Construction Services Fee (\$100 M minus the above two items)
 - Evaluated for reasonableness and if unbalanced
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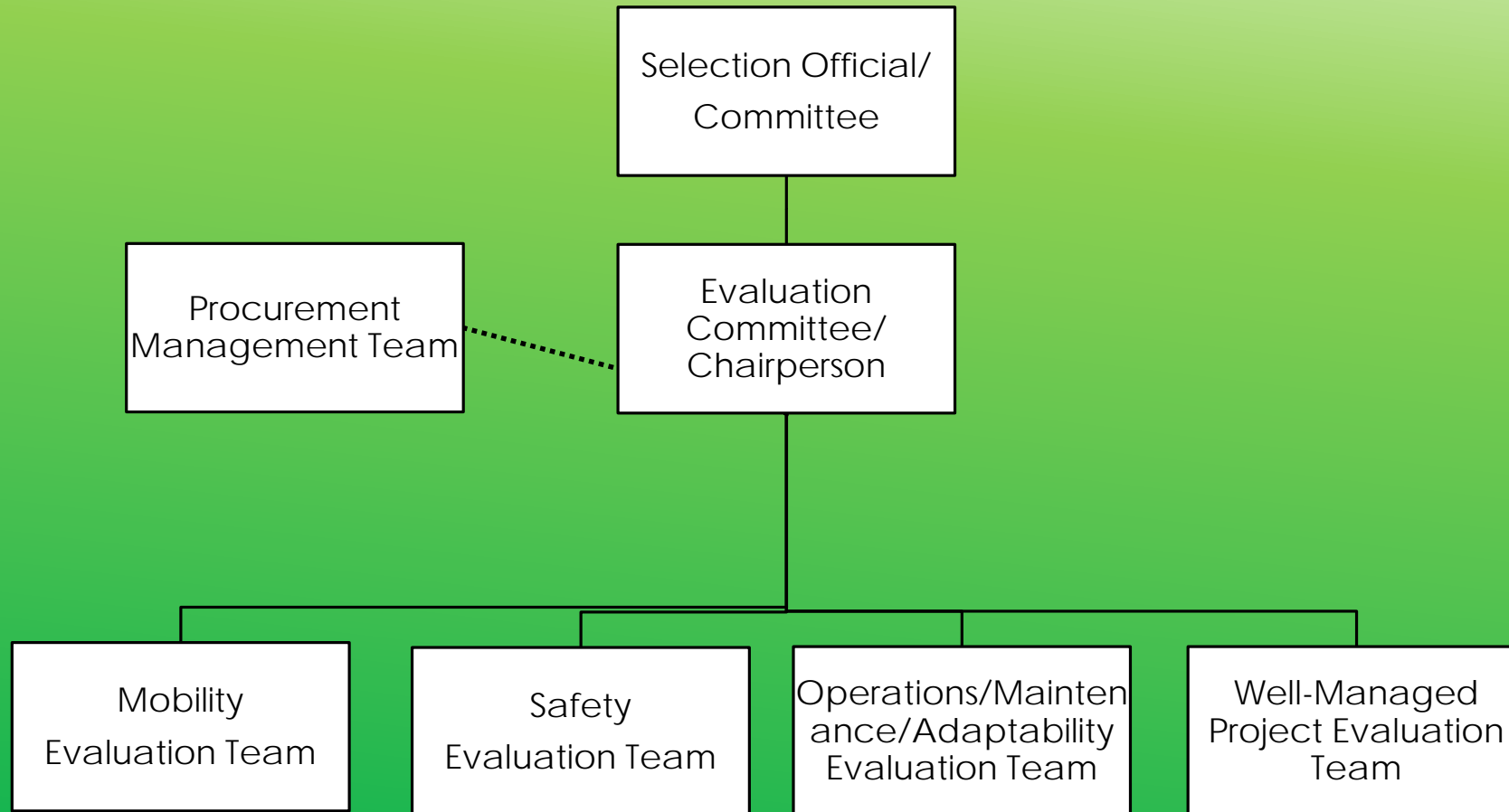
STIPENDS

- \$750,000 (3x greater than typical Bridging Design-Build contract)
- Stipend offsets a portion of significant cost to develop implementable technical solutions
- Provided to Unsuccessful Proposers in Competitive Range or for PTCs which MDOT SHA may wish to utilize
- MDOT SHA “owns” ideas in exchange for stipends

EVALUATION & SELECTION

- Adjectival Rating Process – Exceptional, Good, Acceptable, Unacceptable (+ or -) are assigned using technical judgment and discretion considering strengths, weaknesses, and deficiencies
- Evaluation factors assigned a relative importance – Critical (3X), Significant (2X), Important
- Technical is SUBSTANTIALLY more important than price

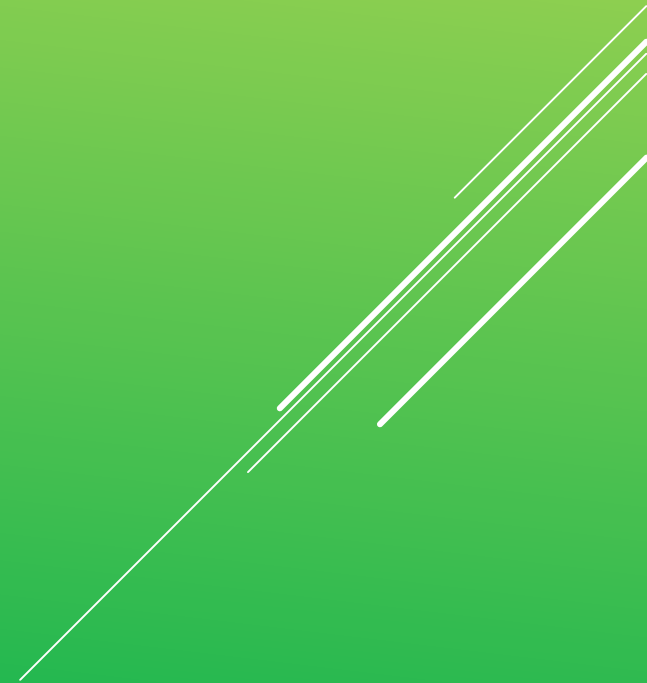
EVALUATION & SELECTION



AFTER SELECTION

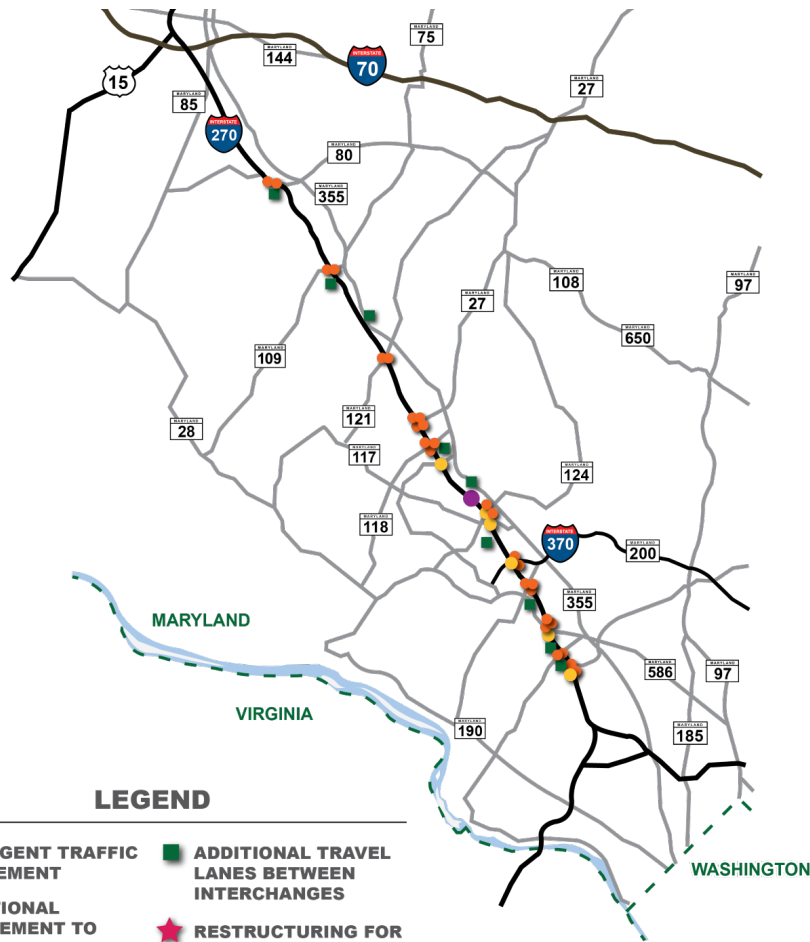
- Fixed Value Contract
 - Initial Notice to Proceed (NTP) – Design/Preconstruction Services
 - NTP 2 - Construction
- Design-Builder becomes part of project team to develop design solutions/concept
- Once design is advance to a significant level, a Construction Agreed Price (CAP) will be developed and agreed upon based upon comparison to an Independent Cost Estimate (ICE)
- Multiple CAPs are expected for standalone construction projects

PROPOSED SOLUTIONS/ MOVING FORWARD

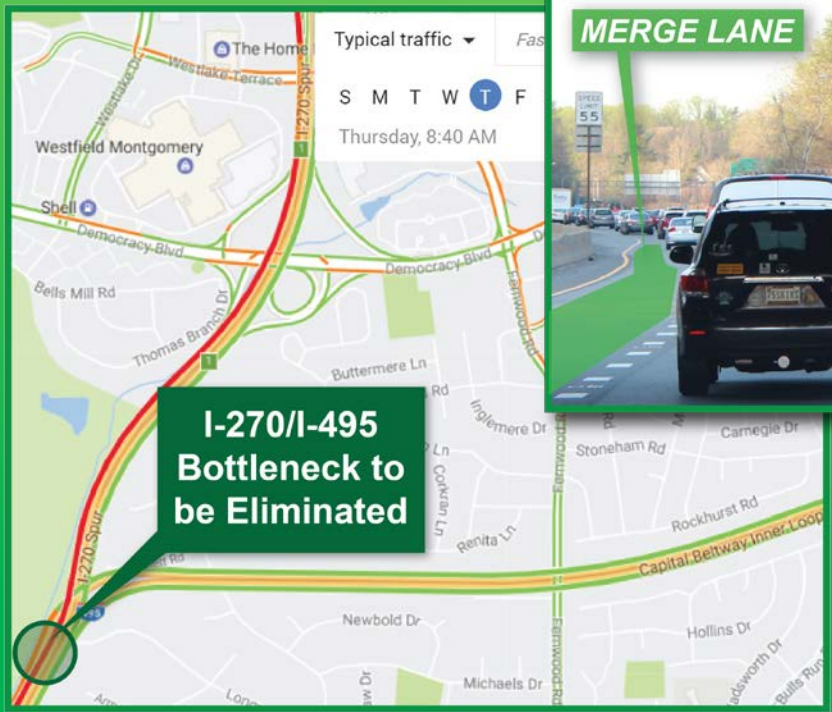
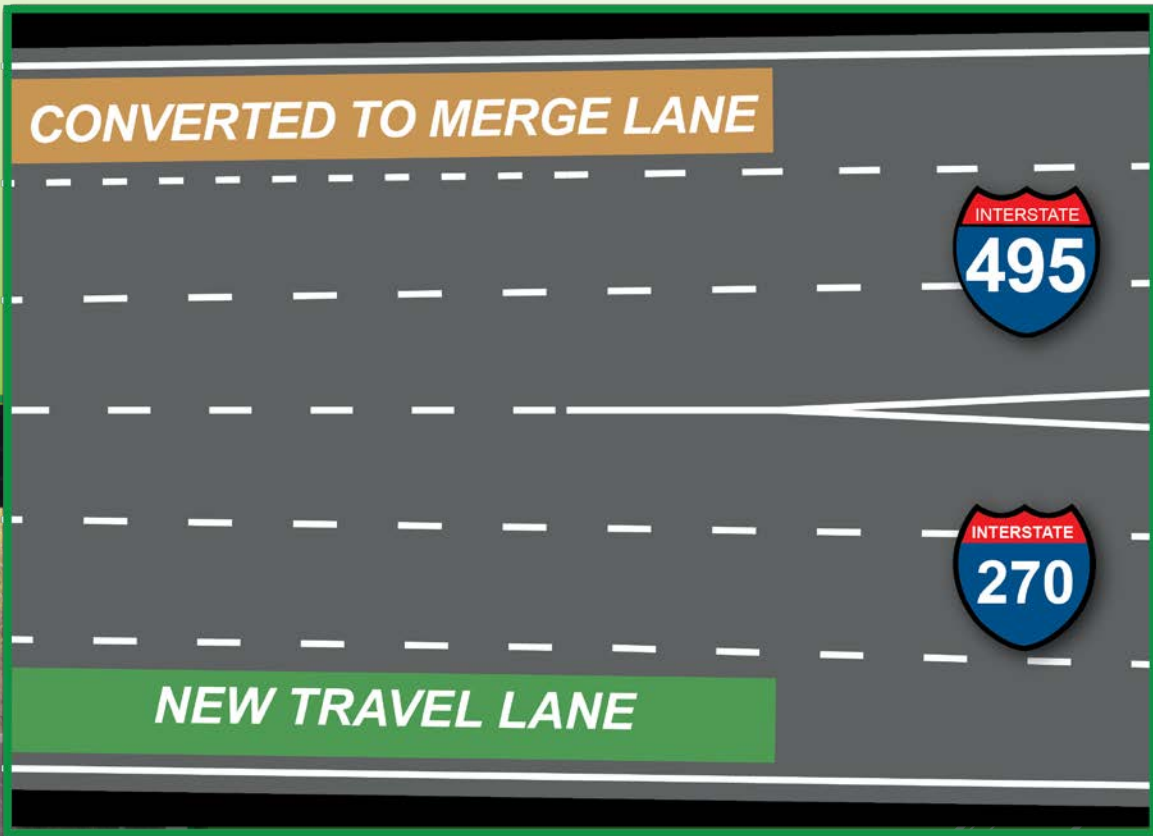


CONCEPT PROGRAM OF SOLUTIONS

- ▶ Two-pronged approach
 - ▶ Roadway Improvements
 - ▶ Innovative Technologies and Techniques



I-270 WEST SPUR AT I-495 OUTER LOOP

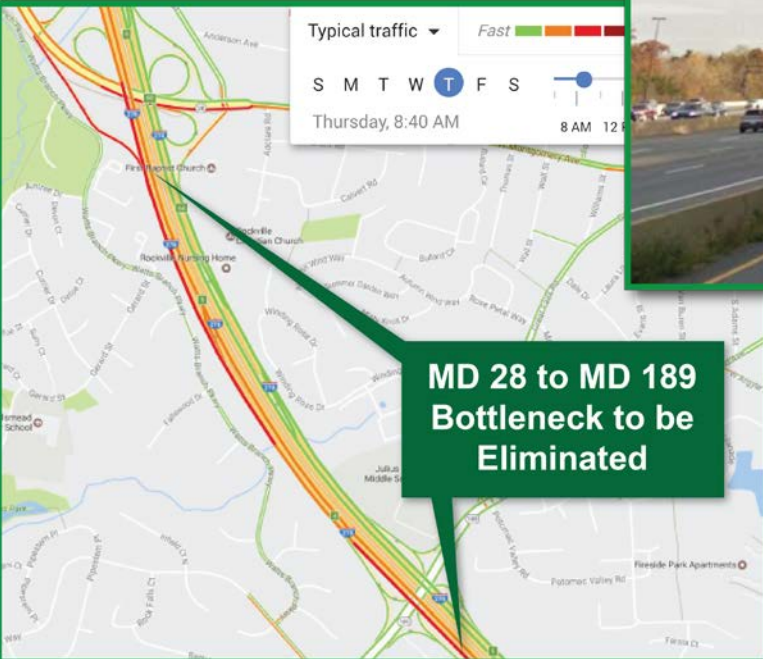
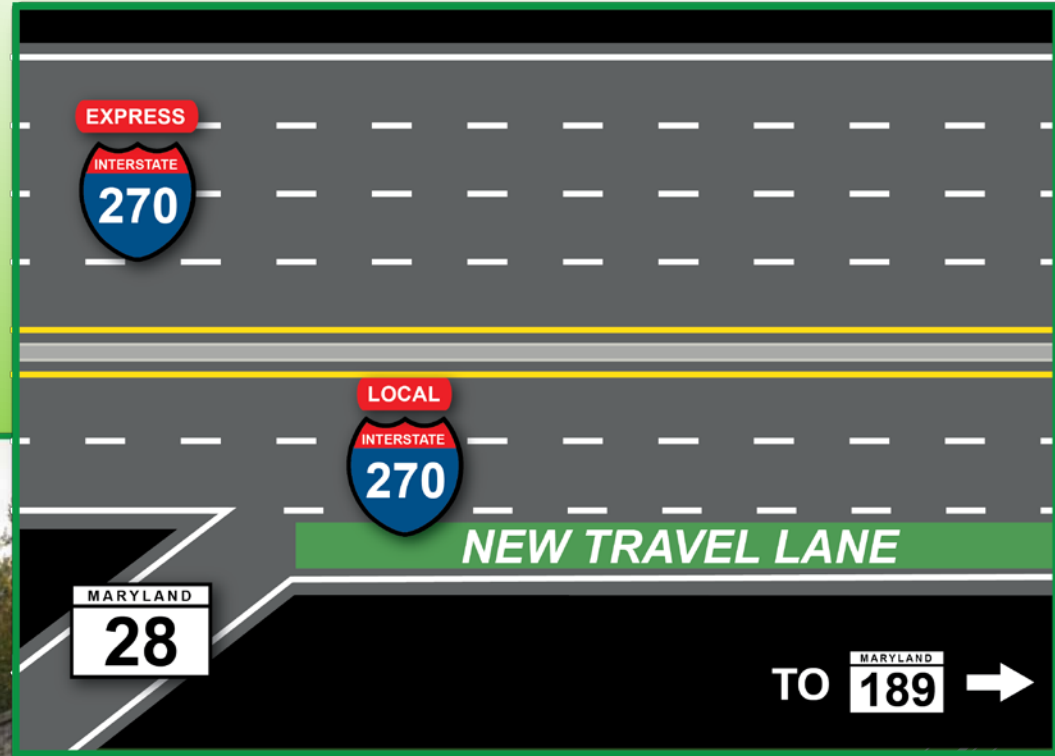


AFTER

BEFORE

14 BOTTLENECKS BROKEN

I-270 SOUTHBOUND MD 28 TO MD 189



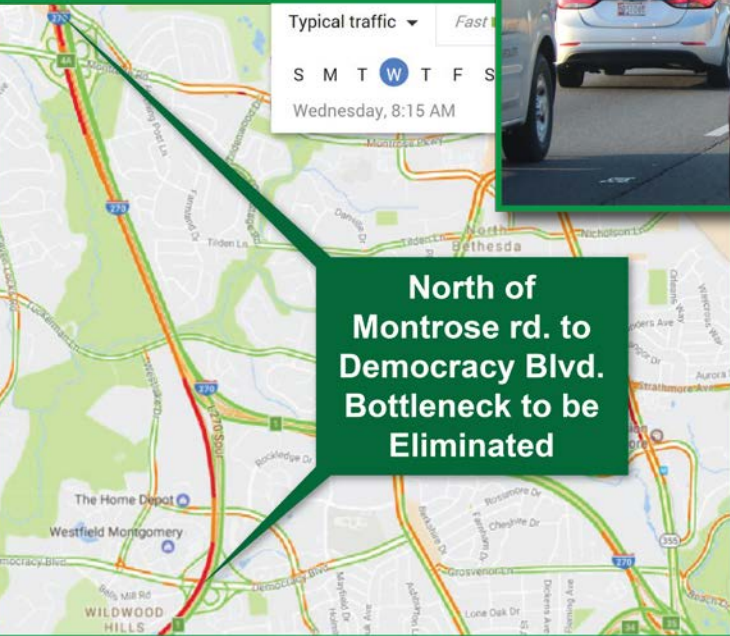
AFTER

BEFORE

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BOTTLENECKS BROKEN

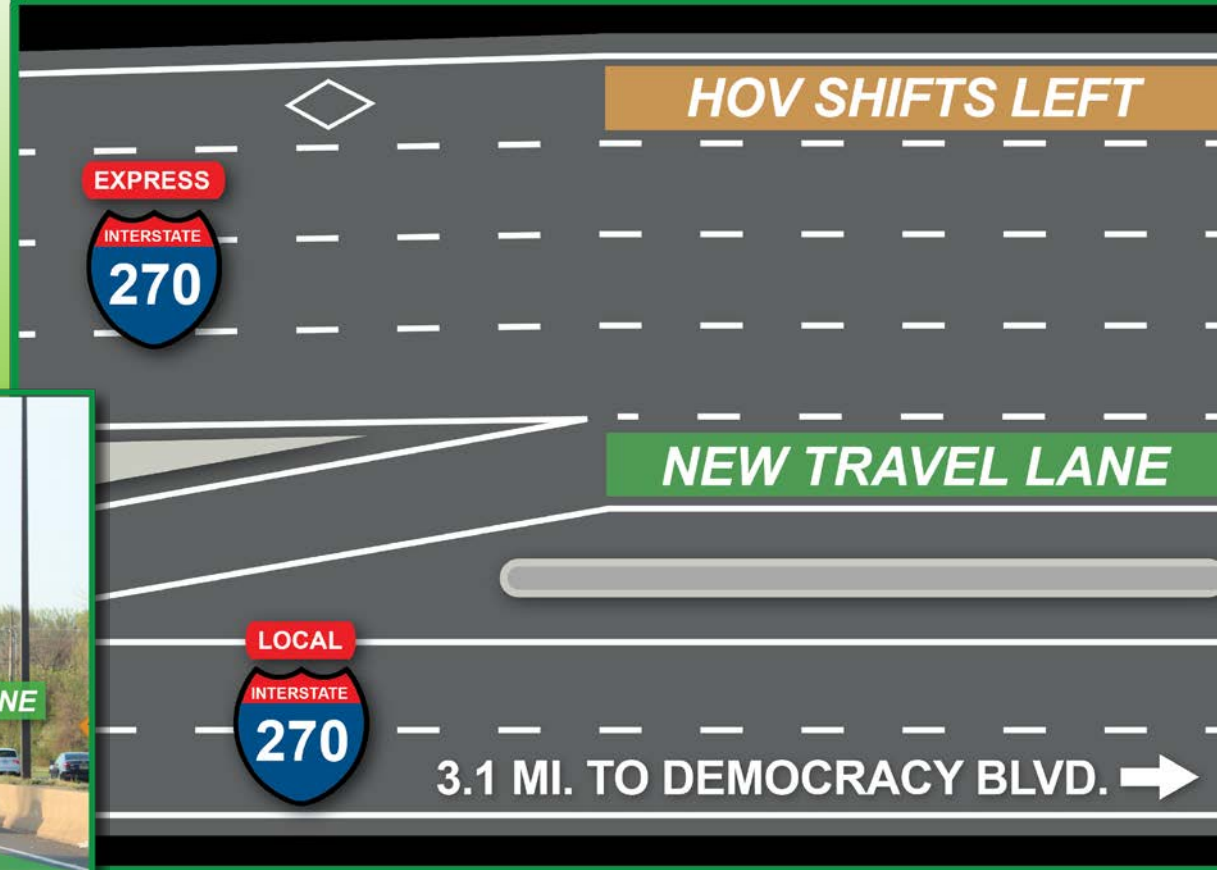
I-270 SOUTHBOUND MONTROSE ROAD TO DEMOCRACY BOULEVARD



Typical traffic
S M T W T F S
Wednesday, 8:15 AM

North of
Montrose rd. to
Democracy Blvd.
Bottleneck to be
Eliminated

BEFORE



AFTER

14

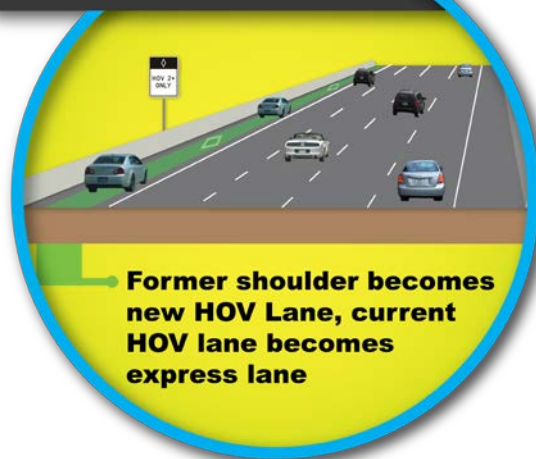
BOTTLENECKS BROKEN

ROADWAY IMPROVEMENTS

I-270 NORTHBOUND
FROM SHADY
GROVE ROAD
TO I-370



SHOULDER TO HOV



I-270
NORTHBOUND
FROM WATKINS
MILL ROAD TO
MIDDLEBROOK
ROAD

- ▶ 11 New Lane Miles Southbound
- ▶ 12 New Lane Miles Northbound

23

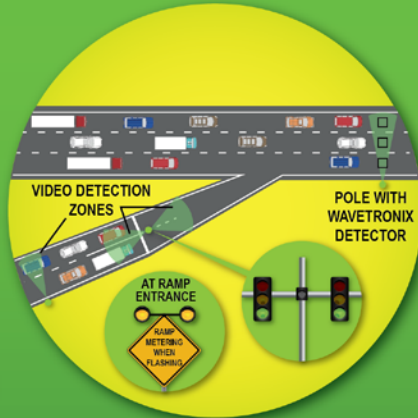
NEW LANE MILES

25+

REAL-TIME TRAFFIC
COMMUNICATION SIGNS

AUTOMATED SMART TRAFFIC FLOW MANAGEMENT

CAMERAS & SENSORS
monitor traffic volumes &
communicate with dynamic
traffic management to
optimize flow



INTELLIGENT SIGNAL SYSTEMS
optimize traffic flow onto I-270



REAL-TIME COMMUNICATION
TO DRIVERS
with dynamic message signs &
optimized traffic management

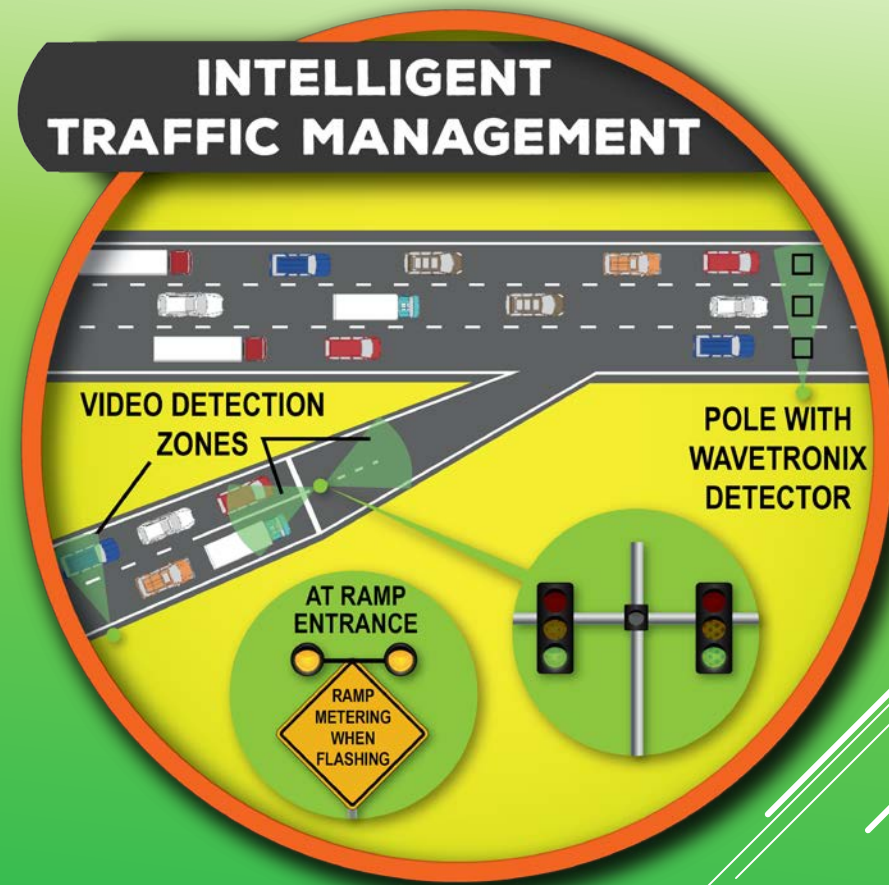
30+

INTELLIGENT SIGNALS

INNOVATIVE
TECHNOLOGIES
AND TECHNIQUES

INTELLIGENT TRAFFIC SIGNALS – HOW DO THEY WORK?

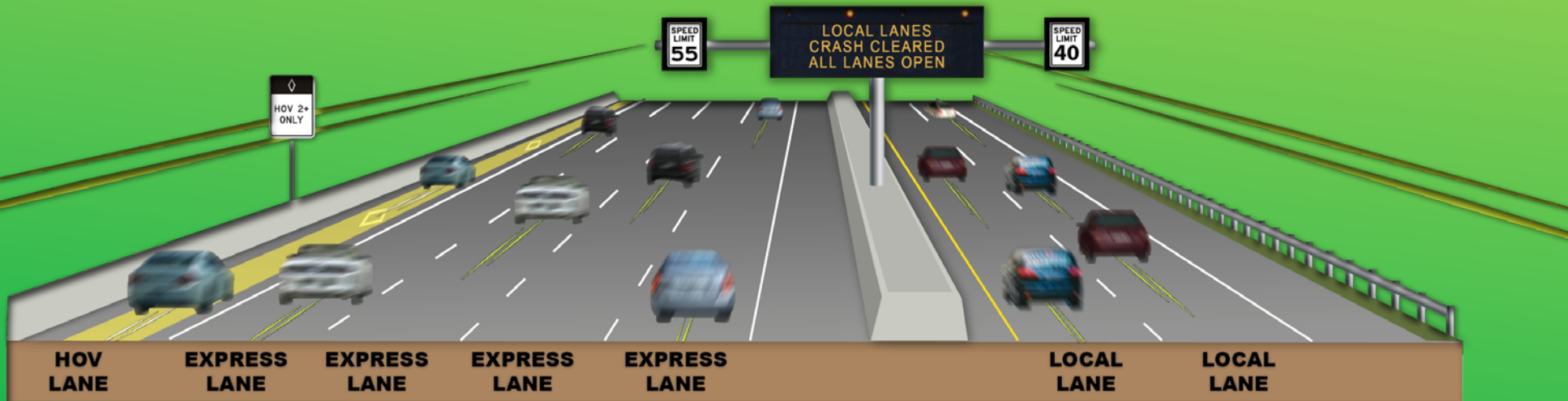
- ▶ Intelligent Traffic Signals will break up platoons of vehicles on I-270 by controlling rate at which vehicles enter I-270.
- ▶ Vehicle Discharge Rates are **ADAPTIVE** based on real time I-270 traffic flow and ramp demands
- ▶ Vehicles would be discharged at rate to **OPTIMIZE** I-270 traffic flow
- ▶ Results in **travel time reductions** even with queue on the ramp and results in **reduced collisions**



1

AUTOMATED SMART TRAFFIC SYSTEM

I-270 – INNOVATION DRIVING MD FROM SLOW TO GO!



*FORMER SHOULDER BECOMES
NEW HOV LANE, CURRENT HOV
LANE BECOMES EXPRESS LANE*



**I-270 CORRIDOR
INVESTING IN**

THE POWER OF GO

INFRASTRUCTURE



TECHNOLOGY



INFORMATION

RESTRUCTURING EXISTING PAVEMENT FOR ADD'L LANES

Extended Merge Lanes

MD 80 (SB)

MD 109 (SB)

MD 121 to Comus Road Bridge (NB)

Additional Exit Lane

I-270 SB at I-370 Exit

Continuous Flow Lane

I-270 SB HOV to I-495 WB

New Third Local Lane

MD 124 to

New Watkins Mill Rd. Interchange (NB)

*New Watkins Mill Rd. Interchange
to Middlebrook Rd. (NB)*

*Shady Grove Rd. to
South of Gude Dr. (SB)*

MD 28 to MD 189 (NB & SB)

MD 189 to Montrose Rd. (SB)

Shoulder becomes HOV lane

New Express Lane

*Montrose Rd. to Democracy Blvd.
(NB & SB)*

AUTOMATED SMART TRAFFIC FLOW MANAGEMENT

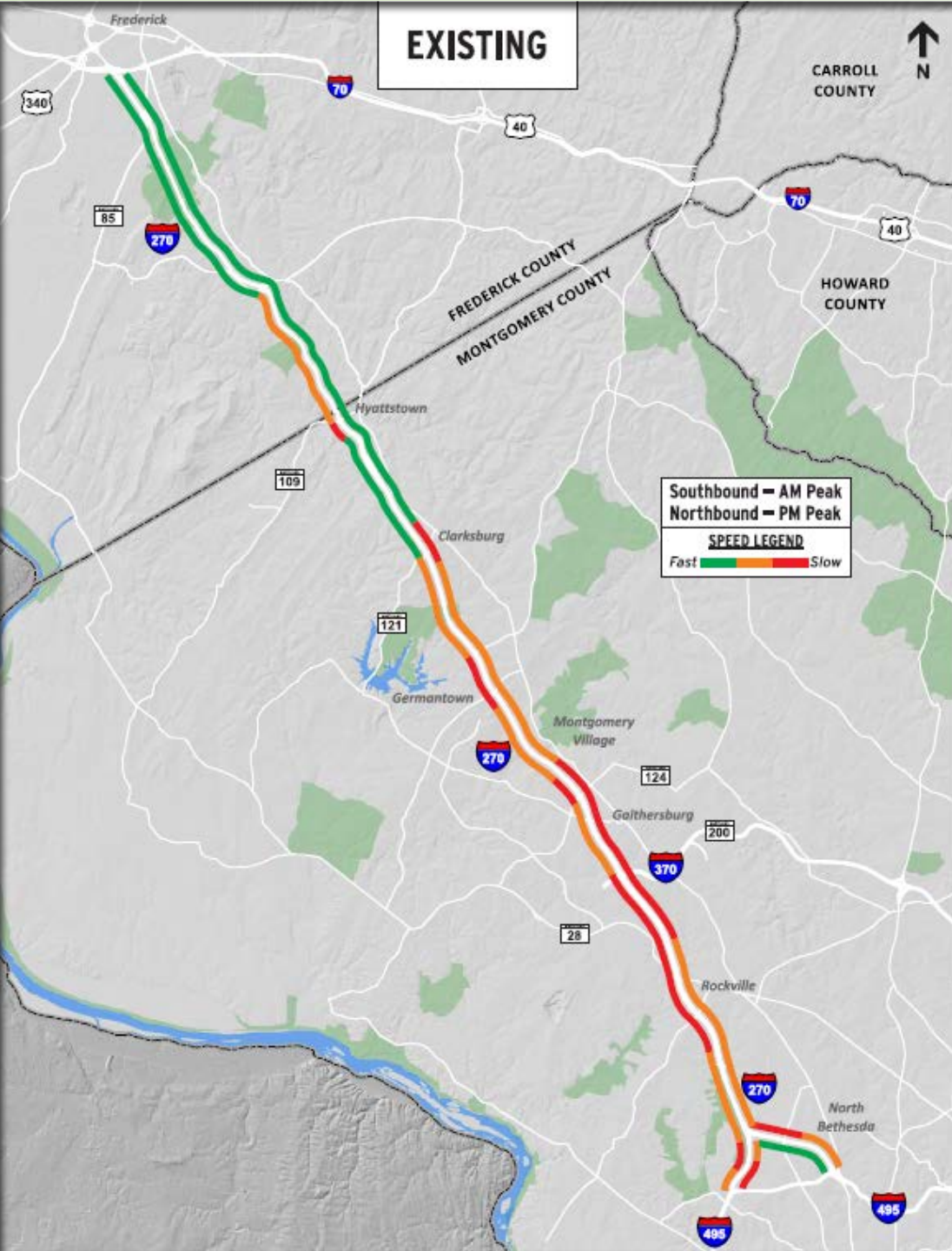
*Cameras and sensors
communicate traffic
density / vehicle type to
entrance ramp signals.*

*Traffic is optimized when
sensors detect gaps
creating smoother and
safer commutes.*

REAL-TIME COMMUNICATION TRAFFIC MANAGEMENT

*Technology-based traffic
optimization and
dynamic messaging
signs provide real-time
communication
to drivers.*

A **SMARTER**
COMMUTE IS A
**SAFER &
FASTER**
COMMUTE!



BEFORE
AND
AFTER



SYSTEM COMPONENTS

SMART ADAPTABLE I-270

1

**AUTOMATED SMART
TRAFFIC SYSTEM**

14

BOTTLENECKS BROKEN

23

NEW LANE MILES

25+

**REAL-TIME TRAFFIC
COMMUNICATION SIGNS**

30+

INTELLIGENT SIGNALS

**Where Do You
Get On?**

**Total Commute
Time Savings**

***Between I-70 and
Father Hurley Blvd.***



***Up To
30 Minutes***

***Between MD 118
(Germantown Rd.) and
MD 117 (Diamond Ave.)***



***Up To
18 Minutes***

***Between I-370 and
Montrose Rd.***



***Up To
9 Minutes***

WHERE DO WE GO FROM HERE?

MOVING FORWARD





**I-270 CORRIDOR
INVESTING IN**

THE POWER OF GO!

QUESTIONS?